# Techniques for Photographing Modern Mollusks [1]

BY

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(1 Plate)

## INTRODUCTION

MANY PHOTOGRAPHERS HAVE experienced difficulty in photographing modern mollusks for illustrating malacological reports. Critical morphological features such as dentition and sculpture are frequently lost in conventional photography because of lustrous surfaces, whiteness, or translucency of the specimens. One of the most common problems is the loss of surficial details in the glare caused by reflection from the light sources. These problems have often made it necessary to retouch photographs of modern pelecypods and gastropods to provide satisfactory illustrations for scientific publications.

This report describes and illustrates some techniques for producing high-quality photographs of modern mollusks that do not require retouching. These techniques, equally applicable to photography of fossils, involve coating the surface of a shell with various substances prior to photography. Customarily, modern mollusks are photographed without applying any coating to the shell surfaces, whereas fossil invertebrates are frequently coated with substances such as ammonium chloride (KIER, GRANT, & YOCHELSON, 1965) before photographing, to improve the quality of the photograph.

These techniques are illustrated by selected photographs of a few modern mollusks (Figures *1* - *18*) that are arranged to contrast various coating techniques with conventional (uncoated) photographs. Specimens of *Cassis* and *Oliva* in the top 2 rows (Figures *1* - *8*) have been photographed using 3 different techniques but under identical lighting conditions. Figures *1* and *5* are photographed without any coating; Figures *2* and *6* are coated with a dulling spray; Figures *3* and *7* are coated with ammonium chloride (whitening technique); and Figures *4* and *8* are coated with black opaque, dried, and then dusted with ammonium chloride. The rest of the specimens (Figures *9* to *18*) are photographed either naturally (untreated) (Figures *9, 10, 13, 14,* and *17*) or after they were coated with black opaque and then dusted with ammonium chloride (Figures *11, 12, 15, 16,* and *18*). These are arranged in pairs to show the advantages of the black opaque technique described below. Explanations of the 3 different techniques of coating shells are also given.

## DULLING SPRAY TECHNIQUE

Use of dulling spray on the specimens (Figures *2* and *6*) eliminates much of the glare from reflecting surfaces, but the representation of textural details (relief), especially on white shells or on whitish areas of many specimens, is not significantly improved compared with the untreated specimens (Figures *1* and *5*). For example, the denticles on the outer lip of the *Cassis* are washed out in both Figures *1* and *2*. An advantage of this technique, however, is that it does not conceal color patterning, and in photographing uniformly darker colored shells such as the *Oliva* (Figure *6*), it serves quite adequately. After photography this substance can be removed with a solvent such as acetone. The brand name of the spray is Krylon Dulling Spray No. 1310, manufactured by Krylon, Inc., Norristown, Pennsylvania.

## AMMONIUM CHLORIDE (WHITENING) TECHNIQUE

Application of ammonium chloride sublimate (KIER, GRANT, & YOCHELSON, 1965), a technique commonly

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used in photography of fossil specimens, eliminates glare to an even greater extent than does the dulling spray. Color patterns, however, are diminished in clarity (compare Figures *1* and *5* with Figures *3* and 7). This technique is also superior to the use of dulling spray in bringing out textural details (compare Figures *2* and *3*) and the coating can be easily removed by rinsing the specimen in water.

## BLACK OPAQUE TECHNIQUE

This technique involves coating dry specimens with black opaque, applied with a small brush. It can be diluted with water to the desired consistency each time it is used, and it dries quickly. The brand of black opaque used in coating these specimens is Rogersoll G-88, manufactured by Harry H. Roger, Inc., 5331 S. Cicero Avenue, Chicago, Illinois.

After the opaque has dried thoroughly, the specimen is dusted with a thin film of ammonium chloride sublimate delivered from a spray gun (Sakamoto, 1970); it is then ready for photography.

When photography has been completed, the opaque can be easily cleaned off the specimen with water and a soft brush. Some specimens, however, are more difficult to clean than others; such specimens can be immersed in warm water to which a small amount of sodium hydroxide has been added, and then agitated in an ultrasonic cleaner for a few minutes.

Photographs made using this technique are exceptionally sharp and clear. For example, the denticles on the aperture of the cassidid gastropod are clearly discernible (Figure *4*), whereas many of them are extremely difficult to detect on the uncoated view (Figure *1*). The contrast between this technique and photographs of untreated specimens is further illustrated by Figures *5* and *8, 9* and *12, 10* and *11, 13* and *16, 14* and *15,* and *17* and *18*. The potential of the black opaque technique in the photography of bivalve interiors, as illustrated by the *Dosinia* (Figures *13* and *16*) and the *Macoma* (Figures *17* and *18*), is clearly shown by the sharp and detailed photographs of the pallial sinus, muscle scars, and dentition; these features can be accurately shown without retouching the photograph or outlining these features prior to photography. Photographs made with the black opaque technique are clearly superior to those in which the specimens are photographed without any preparation or either of the other techniques.

Coating translucent or thin specimens with black opaque also prevents light from passing through the specimen when the white background technique (Sakamoto, 1970) is used to obtain an initial white margin around the specimen. Black opaque is superior to semi-permanent ink or dyes as an undercoating because the opaque can be easily washed off a specimen.

However, the black opaque technique completely masks color patterning. For specimens with color patterning 2 photographs of each specimen can be combined – one treated with the dulling spray to show the color patterning and the other coated with the combination of black opaque and ammonium chloride to show sculptural and textural details.

## WHITE BACKGROUND TECHNIQUE

Modern mollusks are generally illustrated on a white background in published reports. The specimens, however, are usually photographed against a dark background. This undesirable background can best be eliminated by a simple photographic procedure – the white background technique (Sakomoto, 1970: D231 - D232). In this technique the specimen is placed on a small light-box (15 cm square) and held in place with a lump of modeling clay and photographed. Next the room is darkened and the dark area surrounding the object on the negative is re-exposed by illuminating the light-box (the object remaining in place) for about 20 seconds. The light source is an internally mounted, transformer-controlled 40-watt bulb; the light-box is topped with a pane of frosted glass. This technique saves considerable time in preparing illustrative plates and provides a more accurate outline of specimens than trimming with scissors or applying opaque to the negative.

## CONCLUSION

Photography of modern mollusk shells using a combination of the black opaque technique and subsequent whitening with ammonium chloride produces high-quality photographs that do not require retouching. The photographs are of uniform tone and show excellent definition, sharpness, resolution, and contrast. These techniques eliminate glare and mottling. If color patterning should be shown, a second photograph of the specimen coated with dulling spray can be prepared. The black opaque technique is especially advantageous for obtaining an original white background and for photographing fossils with pronounced color mottling.

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## Explanation of Figures *1* to *18*

(all figures natural size)

Figures *1* to *4*: *Cassis* sp., Baja California, Mexico. *1* untreated; *2* coated with dulling spray; *3* coated with ammonium chloride; *4* coated with black opaque and ammonium chloride.

Figures *5* to *8*: *Oliva* sp., Baja California, Mexico. *5* untreated; *6* coated with dulling spray; *7* coated with ammonium chloride; *8* coated with black opaque and ammonium chloride.

Figures *9, 12, 13,* and *16*: *Dosinia* sp., Baja California, Mexico. *9, 13,* untreated; *12, 16,* coated with black opaque and ammonium chloride.

Figures *10* and *11*: *Conus* sp., Baja California, Mexico. *10* untreated; *11* coated with black opaque and ammonium chloride.

Figures *14* and *15*: *Polinices* sp., Baja California, Mexico. *14* untreated; *15* coated with black opaque and ammonium chloride.

Figures *17* and *18*: *Macoma* sp., Gulf of Alaska, Alaska. *17* untreated; *18* coated with black opaque and ammonium chloride.